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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,299	09/24/2001	Eric Pierre de Rouffignac	5659-02500/EBM	3896

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EXAMINER

SUCHFIELD, GEORGE A

ART UNIT

PAPER NUMBER

3672

DATE MAILED: 12/10/2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/841,299

Applicant(s)

DE ROUFFIGNAC ET AL.

Examiner

George Suchfield

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2270-2308 and 5396-5466 is/are pending in the application.
- 4a) Of the above claim(s) 2274, 2275, 5403, 5404 and 5449-5466 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2270-2273, 2276-2308, 5396-5402 and 5405-5448 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 270-2308 and 5396-5466 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13. 6) ☐ Other:

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 5397-5409 (second occurrence) been renumbered 5410-5422, and misnumbered claims 5410-5453 have been renumbered 5423-5466.

3. Newly submitted claims 5449-5466 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

They are considered to comprise, in conjunction with the claims already pending, subcombinations, usable together, insofar as the new claims could be practiced in a process not requiring the porosity to increase in a uniform manner, as evidenced by new claims 5449, 5451-5458 and 5460-5466.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 5449-5466 stand withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

4. Newly submitted claims 5403 and 5404 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: They correspond to species of heaters, non-elected in the previous Office action

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Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 5403-5404 stand withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

5. Claims 5398, 5399, 5447 and 5448 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5398, 5399, 5447 and 5448 are deemed incomplete and therefore indefinite insofar as there is no step of initially establishing "a pyrolysis zone", as called for in lines 1 and 2 of the claims. This rejection could be overcome, however, by, e.g., amending lines 1 and 2 of claims 5398 and 5447 to read -- wherein a pyrolysis zone is established in the part of the formation --, and amending lines 1 and 2 of claim 5399 and 5448 to read -- wherein a pyrolysis zone is established in the part of the formation proximate to and/or surrounding at least one of the heaters --.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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7. Claims 2270-2308 and 5396-5448 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2270-2308 of copending Application No. 09/841,284. Although the conflicting claims are not identical, they are not patentably distinct from each other because the hydrocarbon formation treated by the method of claims 2270, 5397 and 5440 of this pending application is deemed broad enough to encompass or comprise the coal formation of claim 2270 of the copending application.

Otherwise, the pending claims appear to correspond to the claims of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 2270-2273, 2277, 2279, 2282-2295, 2303-2305, 5397-5402, 5407, 5409, 5412-5425, 5433-5435 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sresty et al (4,485,869).

Sresty et al (note col. 3, line 53 – col. 4, line 22) disclose a process for heating a hydrocarbon formation utilizing a plurality of electrical heaters or electrodes (12,14,16) positioned within the formation. Uniform heating is imparted to the part or section of the formation bounded by the electrodes (note heating zone 28 of Fig.1). It is further disclosed that the heating is effected uniformly within the part of the formation, which results in an accompanying increase in the porosity of such part or section of the formation.

Insofar as the heating is applied uniformly to the hydrocarbon formation, as noted, it is deemed that the accompanying increase in the porosity of such formation interval or part (note col. 7, lines 23-40; col. 9, lines 23-58) will inherently or obviously occur uniformly,

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commensurate with the heating by the electrical heaters or electrodes (12,14,16), as called for in claims 2270, 2273, 5397 and 5402.

As per claims 2271, 5400, it is deemed that at least some overlap or superposition of the heating yielded by the electrical heaters will inherently or obviously occur, due to, e.g., the close proximity of such heaters, as illustrated in Figures 1 and 3.

As per claims 2272, 5398, 5399, 5401, Sresty et al effects pyrolysis in the heated formation section (28) and maintains the temperature within the pyrolysis temperature range recited in claims 2272 and 5401, including a range of 275oC – 325oC.

As per claims 2277, 5407, Sresty et al clearly controls the pressure within the part or section of the formation bounded by the electrodes by controlling the temperature within such formation part or section, e.g., the buildup of high gas pressures with the formation section (28) is avoided by heating between a limited temperature range (note col. 3, line 53 – col. 4, line 22).

As per claims 2279 and 5409, note that the exemplary heating rates set forth in Sresty et al (col. 10, lines 3-41), such as less than 0.2oC per hour are clearly below the ranges in these claims of less than about 10oC per day.

Regarding claims 2282-2295, 5412-5425 it is deemed that the myriad hydrocarbon product mixtures recited in these claims would necessarily or obviously occur in carrying out the in situ oil shale heating process of Sresty et al, i.e., the precise composition of the product fluids is seen as dictated by the particular kerogen naturally occurring in the particular oil shale formation actually encountered in the field. Moreover, it would be an obvious matter of choice to operate the Herzog process to minimize what would be considered refinery contaminants, such as sulfur, nitrogen and/or oxygen in the product mixtures. Similarly, it would be obvious to

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reduce or minimize the amount of asphaltenes in the product mixtures for optimum downstream refining.

Also, in the event that the particular crude oil deposit encountered yields ammonia gas, it would be an obvious expedient to utilize in a commercial process such as fertilizer.

As per claim 2304, 5434 Sresty et al clearly indicates that the uniform heating of the part or portion of the oil shale formation, such as formation section (28) simultaneously increasing the permeability, as well (note, e.g., col. 3, line 53 – col. 4, line 22). Accordingly, it is deemed that the permeability is also necessarily or obviously similarly increased in a uniform manner. Such permeability increase is deemed to necessarily or inherently encompass an increase to “greater than about 100 millidarcy”, as called for in claim 2303, 5433; alternatively, to increase the permeability to greater than 100 millidarcy would have been an obvious matter of choice in order to ensure adequate fluid flow through the oil shale formation.

As per claim 2305, 5435 as illustrated in Figure 8, and as indicated in col. 12, lines 1-32, the heating process is carried out until “substantially all the hydrocarbonaceous liquids are recovered”. Thus, the “condensable hydrocarbons” recovered are deemed to be inherently or obviously at least 60% and above the Fischer Assay value.

9. Claims 2281, 2296, 5411, 5426, 5440-5448 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sresty et al (4,485,869).

The thermal conductivity recited in claims 2281, 5411 is deemed an obvious matter of choice or design based on, e.g., the quality and amount of the kerogen present and/or the matrix characteristics of the particular oil shale formation encountered in the field.

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As per claims 2296, 5426, 5445 Sresty et al also controls the pressure within the heating zone (28) of the oil shale formation by their step of heating the formation "under confining gas pressure" (col. 12, lines 1-32). The recited pressure range of greater than 2.0 bar absolute is deemed an obvious matter of choice or design based on, e.g., the quality and amount of the kerogen present and/or the matrix characteristics of the particular oil shale formation encountered in the field.

As per claim 5440, as indicated above in para 8) with respect to claim 2270, Sresty et al disclose a process for heating a hydrocarbon formation utilizing a plurality of electrical heaters or electrodes (12,14,16) positioned within the formation such that uniform heating is imparted to the part or section of the formation bounded by the electrodes (note heating zone 28 of Fig.1), which also results in an accompanying uniform increase in the porosity of such part or section of the formation. The particular heat output range of less than about 1650 watts per meter recited in claim 5440 is deemed an obvious matter or choice or design based on e.g., the quality and amount of the kerogen present and/or the matrix characteristics of the particular oil shale formation encountered in the field, especially in the absence of any showing of criticality or unexpected results from said range.

As per claim 5441, it is deemed that at least some overlap or superposition of the heating yielded by the electrical heaters will inherently or obviously occur, due to, e.g., the close proximity of such heaters, as illustrated in Figures 1 and 3.

As per claim 5442, 5447, 5448, Sresty et al effects pyrolysis in the heated formation section (28) and maintains the temperature within the pyrolysis temperature range recited in claim 5442, including a range of 275oC – 325oC.

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As per claim 5443, Sresty et al clearly controls the pressure within the part or section of the formation bounded by the electrodes by controlling the temperature within such formation part or section, e.g., the buildup of high gas pressures with the formation section (28) is avoided by heating between a limited temperature range (note col. 3, line 53 – col. 4, line 22).

As per claim 5444, it is deemed that the recited hydrocarbon product mixture comprising condensable hydrocarbons having an API gravity of at least 25 would necessarily or obviously occur in carrying out the in situ oil shale heating process of Sresty et al, i.e., the precise composition of the product fluids is seen as dictated by the particular kerogen content occurring in the particular oil shale formation actually encountered in the field.

10. Applicant's arguments filed with amendment have been considered but are moot in view of the new ground(s) of rejection.

11. It is noted that claims 2276, 2278, 2280, 2297-2302, 2306-2308, 5396, 5405, 5406, 5408, 5410, 5427-5432, 5436-5439 have been rejected only on the grounds of double patenting and/or 35 USC 112(2).

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

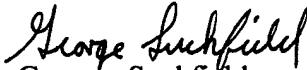
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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Suchfield whose telephone number is 703-308-2152. The examiner can normally be reached on M-F (6:30 - 3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on 703-308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


George Suchfield
Primary Examiner
Art Unit 3672

gs
December 10, 2002